What is claimed is:

1. A hydro-power generation system, comprising:

a housing that includes an inlet and an outlet;

a rotor rotatably positioned within the housing such that the rotor is rotated by a flow of fluid through the housing; and

a stator fixedly positioned to surround the rotor such that rotation of the rotor induces the production of electricity.

2. The hydro-power generation system of claim 1, further comprising a turbine nozzle, wherein the turbine nozzle directs the flow of fluid to the rotor.

3. The hydro-power generation system of claim 2, wherein the turbine nozzle is operable to increase the velocity of the fluid and direct the flow of fluid to achieve a predetermined angle of incidence of the fluid upon the rotor.

4. The hydro-power generation system of claim 1, wherein the rotor comprises a shaft and a turbine rotor.

5. The hydro-power generation system of claim 4, wherein the turbine rotor includes a helical ridge.

6. The hydro-power generation system of claim 4, wherein the turbine rotor includes a plurality of vanes.

7. The hydro-power generation system of claim 1, wherein the stator is fixedly positioned to surround the housing adjacent the rotor.

8. The hydro-power generation system of claim 1, wherein the stator is fixedly positioned within the housing to surround the rotor.

9. The hydro-power generation system of claim 1, wherein the electricity is alternating current.

10. The hydro-power generation system of claim 9, wherein the rotor comprises a permanent magnet.

11. The hydro-power generation system of claim 9, wherein the alternating current is rectified to provide direct current.

12. The hydro-power generation system of claim 1, wherein the electricity is direct current.

13. The hydro-power generation system of claim 12, wherein the stator comprises a permanent magnet.

14. The hydro-power generation system of claim 1, further comprising a plurality of taps operable to provide different voltage levels of electricity.

SUB A3 CONT.

15. The hydro-power generation system of claim 1, further comprising a

plurality of coils that are switchable from a parallel configuration to a series configuration.

16. The hydro-power generation system of claim 1, wherein the hydro-power generation system is formed without flux concentrators.

17. The hydro-power generation system of claim 1, wherein the rotation of the rotor is operable to provide flow-based measurements of the fluid.

18. The hydro-power generation system of claim 1, wherein the inlet is supplied fluid from a liquid treatment system.

19. A hydro-power generation system, comprising:

a housing having an airspace therein;

an impeller rotatably positioned within the airspace;

a nozzle fixedly positioned to penetrate the housing and provide an inlet for fluid into the housing, wherein the nozzle is operable to provide a stream of fluid that is directable at the impeller to induce the rotation of the impeller;

an outlet coupled to the housing to channel the fluid directed at the impeller out of the housing; and

a generator rotatably coupled to the impeller, wherein rotation of the impeller induces the generation of electricity by the generator.

20. The hydro-power generation system of claim 19, wherein the nozzle is operable to change the velocity of fluid flowing therethrough to subsonic speed.

21. The hydro-power generation system of claim 19, wherein the generator generates alternating current.

22. The hydro-power generation system of claim 21, wherein the alternating current is rectified to provide direct current.

23. The hydro-power generation system of claim 19, wherein the generator generates direct current.

24. The hydro-power generation system of claim 19, wherein the impeller comprises a plurality of blades.

25. The hydro-power generation system of claim 24, wherein the blades comprise parabolic shaped paddles.

26. The hydro-power generation system of claim 19, wherein the generator includes multiple taps operable to provide different voltage levels of electricity.

27. The hydro-power generation system of claim 19, wherein the generator comprises a plurality of coils that are switchable from a parallel configuration to a series configuration.

28. The hydro-power generation system of claim 19, wherein the generator is formed without flux concentrators.

29. A method of supplying electricity using a flow of fluid, the method comprising:

providing a housing that includes an inlet and an outlet;

supplying the flow of fluid to the inlet of the housing, wherein the fluid flows through the housing to the outlet;

rotating a rotor that is positioned in the housing such that the rotor is surrounded by a stator, wherein the rotor rotates as a result of the fluid flowing through the housing; and

generating electricity with the rotor and the stator, wherein rotation of the rotor induces the generation of electricity.

30. The method of claim 29, further comprising the act of directing the flow of fluid to the rotor with a turbine nozzle.

31. The method of claim 30, further comprising the act of increasing the velocity of the fluid with the turbine nozzle.

32. The method of claim 29, wherein the electricity generated is alternating current.

33. The method of claim 32, further comprising the act of rectifying the alternating current to provide direct current.

34. The method of claim 29, wherein the electricity generated is direct

current.

35. The method of claim 29, further comprising the act of charging an energy storage device.

36. The method of claim 29, further comprising the act of channeling the fluid to the outlet with a plurality of exit guide vanes.

37. The method of claim 29, further comprising the act of circulating the fluid to a bearing to cool and lubricate the bearing.

38. The method of claim 29, further comprising the act of adjusting the voltage and current levels of the electricity with a plurality of coils.

39. The method of claim 38, further comprising the act of switching the coils between a parallel configuration and a series configuration.

40. The method of claim 38, further comprising the act of electrically connecting the coils with a plurality of taps to provide a plurality of voltage levels.

41. The method of claim 29, further comprising the act of forming the hydro-power generation system without flux concentrators.

42. A method of supplying electricity using a flow of fluid, the method comprising:

providing a housing having an airspace;

supplying the flow of fluid to a nozzle;

directing the fluid sprayed from the nozzle at an impeller rotatably positioned within the airspace;

rotating the impeller and a rotor fixedly coupled to the impeller with the fluid, wherein the rotor is cooperatively operable with a stator to form a generator; and

generating electricity with the generator.

43. The method of claim 42, further comprising the act of increasing the velocity of the fluid with the nozzle.

44. The method of claim 42, further comprising the act of channeling the fluid directed at the rotor out of the housing.

45. The method of claim 42, wherein the electricity generated is alternating current.

46. The method of claim 45, further comprising the act of rectifying the alternating current to provide direct current.

47. The method of claim 42, wherein the electricity generated is direct current.

48. The method of claim 42, further comprising the act of adjusting the voltage and current levels of the electricity with a plurality of coils.

49. The method of claim 48, further comprising the act of switching the coils between a parallel configuration and a series configuration.

50. The method of claim 48, further comprising the act of electrically connecting the coils with a plurality of taps to provide a plurality of voltage levels.

51. The method of claim 42, further comprising the act of forming the generator without flux concentrators.

52. The method of claim 42, further comprising the act of charging an energy storage device.